



Refrigerated Air Dryer

For use in Europe and South East Asia

EC Directive compliant (with CE marking)

Power supply voltage:
Single-phase 230 VAC (50 Hz)

Series **IDFA□E**

Refrigerant **R134a(HFC)**
R407C(HFC)

Coefficient of destruction
for ozone is zero.

Improved corrosion resistance with
the use of stainless steel, plate type
heat exchanger (IDFA4E to 75E)

New
IDFA55E, 75E
are added!



Series	Air flow capacity (m³/h [ANR])			Refrigerant	Rated inlet condition	Port size
	Outlet air pressure dew point					
	3°C	7°C	10°C			
IDFA3E	12	15	17	R134a (HFC)	35°C 0.7 MPa	Rc 3/8
IDFA4E	24	31	34			Rc 1/2
IDFA6E	36	46	50			Rc 3/4
IDFA8E	65	83	91			
IDFA11E	80	101	112			Rc 1
IDFA15E	120	152	168			
IDFA22E	182	231	254	R407C (HFC)	R 1	
IDFA37E	273	347	382		R 1½	
IDFA55E	390	432	510		R 2	
IDFA75E	660	720	822			

1. Standard Products

Series IDFA

Standard inlet air type

Rated inlet air temperature: 35°C



Model	Rated inlet condition	Air flow capacity (m³/h [ANR])			Refrigerant	Port size	Page
		Outlet air pressure dew point					
		3°C	7°C	10°C			
IDFA3E	35°C 0.7 MPa	12	15	17	R134a (HFC)	Rc 3/8	P. 3 to 5
IDFA4E		24	31	34		Rc 1/2	
IDFA6E		36	46	50		Rc 3/4	
IDFA8E		65	83	91			
IDFA11E		80	101	112			
IDFA15E		120	152	168	R407C (HFC)	Rc 1	P. 6 to 8
IDFA22E		182	231	254		R 1	
IDFA37E		273	347	382		R 1 ¹ / ₂	
IDFA55E		390	432	510		R 2	
IDFA75E		660	720	822			

2. Options

Specifications	Applicable model	Suffix (Option symbol)	Page
Cool compressed air output	IDFA3E to 11E	IDFA□E-23-A	P. 9
Anti-corrosive treatment	IDFA3E to 75E	IDFA□E-23-C	
For medium air pressure (Auto drain bowl type: Metal bowl with level gauge)	IDFA6E to 37E	IDFA□E-23-K	
With heavy duty auto drain (For medium air pressure)	IDFA4E to 75E	IDFA□E-23-L	
With circuit breaker	IDFA4E to 75E	IDFA□E-23-R	P. 10
With terminal block for power supply, run & alarm signal and remote operation	IDFA4E to 75E	IDFA□E-23-T	
With timer-type solenoid valve (Applicable to medium air pressure)	IDFA4E to 75E	IDFA□E-23-V	

3. Optional Accessories

Description	Page
Dust-protecting filter set	P. 11
Foundation bolt set	

4. Data (Condensed Water Calculation, Dew Point Conversion Chart) ... P. 12

5. Safety Instructions ... Back page 1 to 3

Series IDFA□E

Model Selection

The corrected air flow capacity, which considers the user's operating conditions, is required for selecting the air dryer. Please select using the following procedures.

1 Read the correction factor.

Obtain the correction factor A to D suitable for your operating condition using the table below.

IDFA E Selection Example

Condition	Data symbol	Correction factor ^{Note)}
Inlet air temperature	40°C	A
Ambient temperature	35°C	B
Inlet air pressure	0.5 MPa	C
Air consumption	31 m³/h	—

Note) Values obtained from the table below.

2 Calculate the corrected air flow capacity.

Obtain the corrected air flow capacity from the following formula.
Corrected air flow capacity = Air consumption ÷ (Correction factor A x B x C)

$$\text{Corrected air flow capacity} = 31 \text{ m}^3/\text{h} \div (0.83 \times 0.83 \times 0.92) = 48.9 \text{ m}^3/\text{h}$$

3 Select the model.

Select the model which air flow capacity exceeds the corrected air flow capacity using the specification table. (For air flow capacity, refer to the data D below.)

According to the corrected air flow capacity of 48.9 m³/h, the **IDFA8E** will be selected when the required output air pressure dew point is 3°C. The **IDFA6E** will be selected when the required pressure dew point is 10°C.

4 Option

Refer to page 3, 6.

5 Finalize the model number.

Refer to page 3, 6.

6 Select accessories sold separately.

Refer to page 11.

Data A: Inlet Air Temperature

Inlet air temperature (°C)	Correction factor	
	IDFA3E to 37E	IDFA55E to 75E
5 to 25	1.30	1.33
30	1.25	1.16
35	1	1
40	0.83	0.8
45	0.7	0.64
50	0.6	0.48

Data B: Ambient Temperature

Ambient temperature (°C)	Correction factor	
	IDFA3E to 11E	IDFA15E to 75E
20	1.1	1.1
25	1	1
30	0.91	0.97
35	0.83	0.89
40	0.79	0.77

Data C: Inlet Air Pressure

Inlet air pressure (MPa)	Correction factor	
	IDFA3E to 11E	IDFA15E to 75E
0.3	0.80	0.72
0.4	0.87	0.81
0.5	0.92	0.88
0.6	0.96	0.95
0.7	1.00	1.00
0.8	1.04	1.06
0.9	1.07	1.11
1	1.1	1.16
1.2	1.16	1.21
1.4	1.21	1.25
1.6	1.25	1.27

Data D: Air Flow Capacity

Model		Air flow capacity (m³/h [ANR])				
		IDFA3E	IDFA4E	IDFA6E	IDFA8E	IDFA11E
Outlet air pressure dew point	3°C	12	24	36	65	80
	7°C	15	31	46	83	101
	10°C	17	34	50	91	112

Note) In case of "Option A (Cool compressed air output)", the air flow capacity is different. Refer to page 9 for details.

Model		Air flow capacity (m³/h [ANR])				
		IDFA15E	IDFA22E	IDFA37E	IDFA55E	IDFA75E
Outlet air pressure dew point	3°C	120	182	273	390	660
	7°C	152	231	347	432	720
	10°C	168	254	382	510	822

Refrigerant R134a (HFC)

Series **IDFA** **E**

3E, 4E, 6E, 8E, 11E, 15E
(Inlet air temperature: 35°C)

How to Order

IDFA 8 **E** — **23** —

Size

Size
3
4
6
8
11
15

Note 1)

Nil
A
C
K
L
R
T
V

Voltage

Symbol	Voltage
23	Single-phase 230 VAC (50 Hz)

Options and Available Combinations (Size/Option)

Symbol ^{Note 2)}	Nil	A	C	K	L	R	T	V
Option	None	Cool compressed air output	Anti- corrosive treatment	For medium air pressure (Auto drain bowl type: Metal bowl with level gauge)	With heavy duty auto drain (Applicable to medium air pressure)	With circuit breaker	With terminal block for run & alarm signal	With timer-type solenoid valve (Applicable to medium air pressure)
Size								
3	●	●	●	—	—	—	—	—
4	●	●	●	—	●	●	●	●
6	●	●	●	●	●	●	●	●
8	●	●	●	●	●	●	●	●
11	●	●	●	●	●	●	●	●
15	●	—	●	●	●	●	●	●

Note 1) G thread (PF thread) can accept the R thread (PT male thread), thus making no "F" in the thread specification setting. A conversion adaptor for the R thread (PT male thread) is also contained.

Note 2) Enter alphabetically when multiple options are combined.

However, the following combination cannot be achieved.

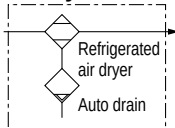
- Combination of K, L and V cannot be achieved because an auto drain can only be attached to a single option.

Note 3) Refer to page 9 for further details on optional specifications.

Standard Specifications



JIS Symbol



Specifications			Model	Standard temperature air inlet						
				IDFA3E	IDFA4E	IDFA6E	IDFA8E	IDFA11E	IDFA15E	
Operating range	Fluid		Compressed air							
	Inlet air temperature (°C)		5 to 50							
	Inlet air pressure (MPa)		0.15 to 1.0							
	Ambient temperature (Humidity) (°C)		2 to 40 (Relative humidity of 85% or less)							
Rated specifications Note 3)	Air flow capacity m³/h	Note 1) Standard condition (ANR)	Outlet air pressure dew point (3°C)	12	24	36	65	80	120	
			Outlet air pressure dew point (7°C)	15	31	46	83	101	152	
			Outlet air pressure dew point (10°C)	17	34	50	91	112	168	
		Note 2) Com-pressor intake condition	Outlet air pressure dew point (3°C)	13	25	37	68	83	125	
			Outlet air pressure dew point (7°C)	16	32	48	86	105	158	
			Outlet air pressure dew point (10°C)	18	35	52	95	116	175	
	Inlet air pressure (MPa)		0.7							
	Inlet air temperature (°C)		35							
	Ambient temperature (°C)		25							
	Electric	Power supply voltage		Single-phase: 230 VAC [Voltage fluctuation ±10%] 50 Hz						
Power consumption (W)		180				208	385	470		
Operating current (A)		1.2				1.4	2.7	3.0		
Applicable circuit breaker capacity Note 4) (A)		5						10		
Condenser		Air-cooled								
Refrigerant		R134a (HFC)								
Auto drain		Float type (Normally closed)			Float type (Normally open)					
Port size		Rc 3/8	Rc 1/2	Rc 3/4				Rc 1		
Accessory		Hexagon nipple								
Weight (kg)		18	22	23	27	28	46			
Coating color		Body panel: White 1 Base: Gray 2								
Compliant standards		EC Directive (with CE marking)								

Note 1) Air flow capacity under the standard condition (ANR) [atmospheric pressure at 20°C, relative humidity at 65%]

Note 2) Air flow capacity converted by the compressor intake condition [atmospheric pressure at 32°C]

Note 3) Select air dryer according to the model selection method (page 2) for the models beyond the rated specifications.

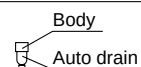
Note 4) Install a circuit breaker with a sensitivity of 30 mA.

Note 5) When a short-term interruption of the power supply (including momentary interruption) occurs in this equipment, the restarting of normal operations may require some time or may be impossible due to the operation of protective devices even after the supply of power returns.

Replacement Parts

Model	IDFA3E	IDFA4E	IDFA6E	IDFA8E	IDFA11E	IDFA15E
Auto drain replacement parts no. Note 5)	AD38			AD48		

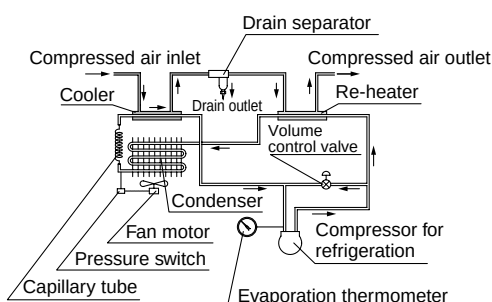
Note 6) The part number for the auto drain components without including the body part.
Body part replacement is impossible.



Construction (Air/Refrigerant Circuit)

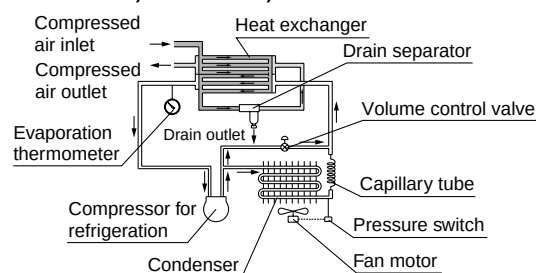
Humid, hot air coming into the air dryer will be cooled down by a cooler re-heater (heat exchanger). Water condensed at this time will be removed from the air by auto drain and drained out automatically. Air separated from the water will be heated by a cooler re-heater (heat exchanger) to obtain the dried air, which goes through to the outlet side.

IDFA3E



IDFA4E, IDFA6E

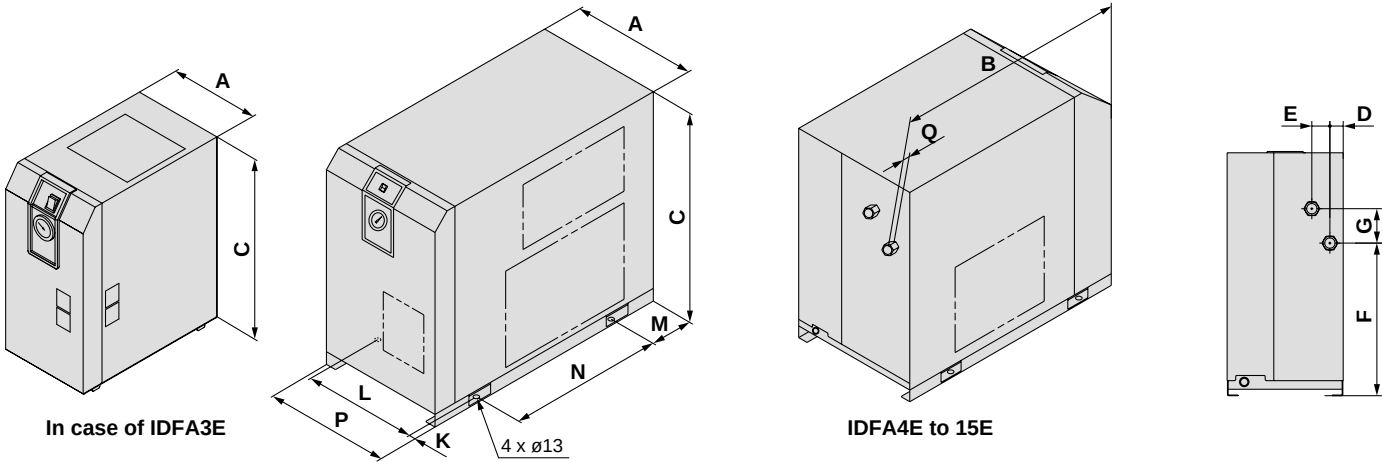
IDFA8E, IDFA11E, IDFA15E



Series **IDFA□E**

Dimensions

IDFA3E to 15E



Dimensions

(mm)

Model	Port size	A	B	C	D	E	F	G	K*	L*	M*	N*	P	Q
IDFA3E	Rc 3/8	226	410	473	67	125	304	33	36	154	21	330		15
IDFA4E	Rc 1/2		453	498			283					275		13
IDFA6E	Rc 3/4	270	455		31	42		80		240	80			
IDFA8E			485	568			355		15			300		15
IDFA11E														
IDFA15E	Rc 1	300	603	578	41	54	396	87		43	101	380	314	16

* Meaning the foot dimensions for the IDFA3E.

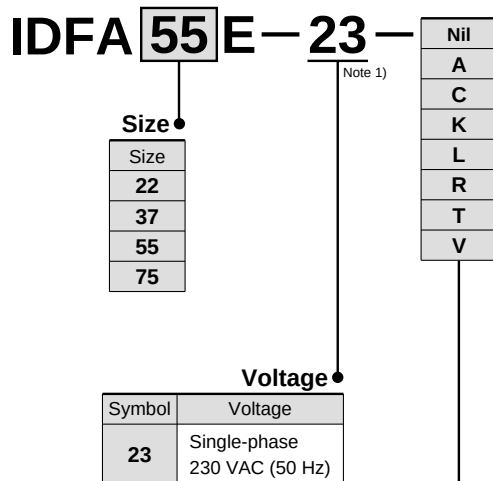
Refrigerant R407C (HFC)

Series **IDFA** **E**

22E, 37E, 55E, 75E

(Inlet air temperature: 35°C)

How to Order



Options and Available Combinations (Size/Option)

Symbol Note 2)	Nil	A	C	K	L	R	T	V
Option	None	Cool compressed air output	Anti-corrosive treatment	For medium air pressure (Auto drain bowl type: Metal bowl with level gauge)	With heavy duty auto drain (Applicable to medium air pressure)	With circuit breaker	With terminal block for run & alarm signal	With timer-type solenoid valve (Applicable to medium air pressure)
Size								
22	●	—	●	●	●	●	●	●
37	●	—	●	●	●	●	●	●
55	●	—	●	—	●	●	●	●
75	●	—	●	—	●	●	●	●

Note 1) G thread (PF thread) can accept the R thread (PT male thread), thus making no "F" in the thread specification setting.

Note 2) Enter alphabetically when multiple options are combined.

However, the following combination cannot be achieved.

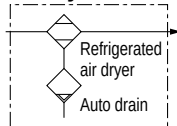
- Combination of K, L and V cannot be achieved because an auto drain can only be attached to a single option.

Note 3) Refer to page 9 for further details on optional specifications.

Standard Specifications



JIS Symbol



Specifications			Model	Standard temperature air inlet			
				IDFA22E	IDFA37E	IDFA55E	IDFA75E
Operating range	Fluid			Compressed air			
	Inlet air temperature (°C)			5 to 50			
	Inlet air pressure (MPa)			0.15 to 1.0			
	Ambient temperature (Humidity) (°C)			2 to 40 (Relative humidity of 85% or less)			
Rated specifications Note 3)	Air flow capacity m³/h	Note 1) Standard condition (ANR)	Outlet air pressure dew point (3°C)	182	273	390	660
			Outlet air pressure dew point (7°C)	231	347	432	720
			Outlet air pressure dew point (10°C)	254	382	510	822
		Note 2) Com-pressor intake condition	Outlet air pressure dew point (3°C)	189	284	405	686
			Outlet air pressure dew point (7°C)	240	361	449	748
			Outlet air pressure dew point (10°C)	264	397	530	854
	Inlet air pressure (MPa)			0.7			
	Inlet air temperature (°C)			35			
	Ambient temperature (°C)			25			
Electric	Power supply voltage			Single-phase: 230 VAC [Voltage fluctuation ±10%] 50 Hz			
	Power consumption (W)			760		1130	1700
	Operating current (A)			4.3		5.4	7.9
	Applicable circuit breaker capacity Note 4) (A)			10			20
	Condenser			Air-cooled			
	Refrigerant			R407C (HFC)			
	Auto drain			Float type (Normally open)			
	Port size			R 1	R 1½	R 2	
	Accessory			—			
Weight (kg)			54	62	100	116	
Coating color			Body panel: White 1 Base: Gray 2				
Compliant standards			EC Directive (with CE marking)				

Note 1) Air flow capacity under the standard condition (ANR) [atmospheric pressure at 20°C, relative humidity at 65%]

Note 2) Air flow capacity converted by the compressor intake condition [atmospheric pressure at 32°C]

Note 3) Select air dryer according to the model selection method (page 2) for the models beyond the rated specifications.

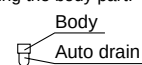
Note 4) Install a circuit breaker with a sensitivity of 30 mA.

Note 5) When a short-term interruption of the power supply (including momentary interruption) occurs in this equipment, the restarting of normal operations may require some time or may be impossible due to the operation of protective devices even after the supply of power returns.

Replacement Parts

Model	IDFA22E	IDFA37E	IDFA55E	IDFA75E
Auto drain replacement parts no. Note 5)	AD48			

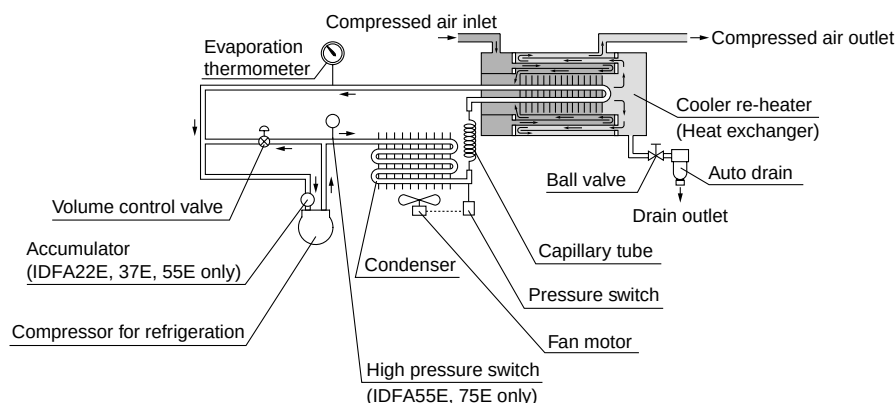
Note 6) The part number for the auto drain components without including the body part.
Body part replacement is impossible.



Construction (Air/Refrigerant Circuit)

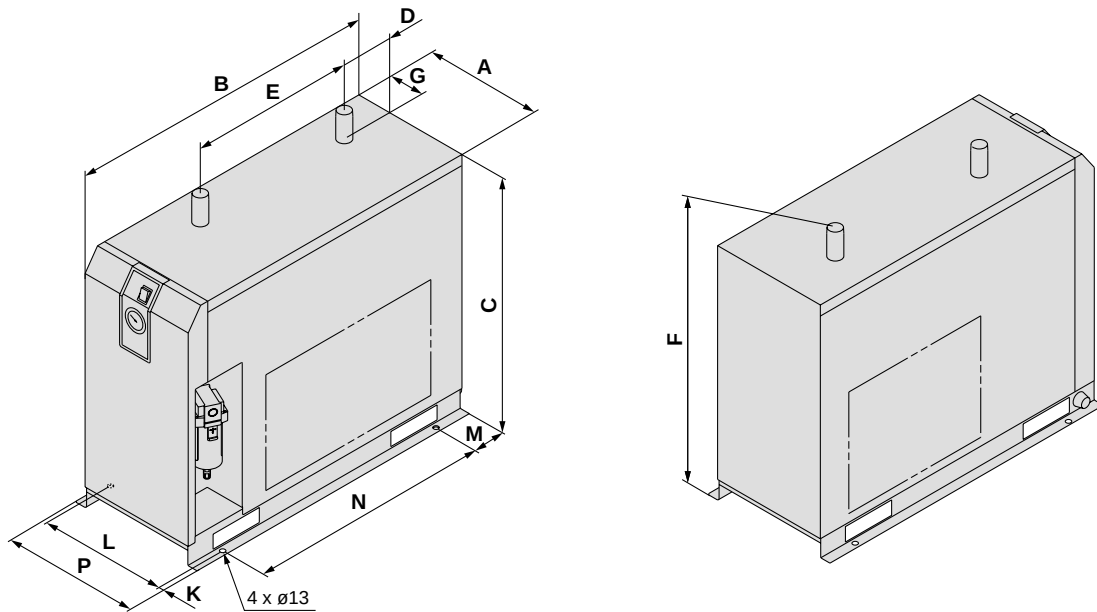
Humid, hot air coming into the air dryer will be cooled down by a cooler re-heater (heat exchanger). Water condensed at this time will be removed from the air by auto drain and drained out automatically. Air separated from the water will be heated by a cooler re-heater (heat exchanger) to obtain the dried air, which goes through to the outlet side.

IDFA22E, IDFA37E, IDFA55E, IDFA75E



Dimensions

IDFA22E, IDFA37E

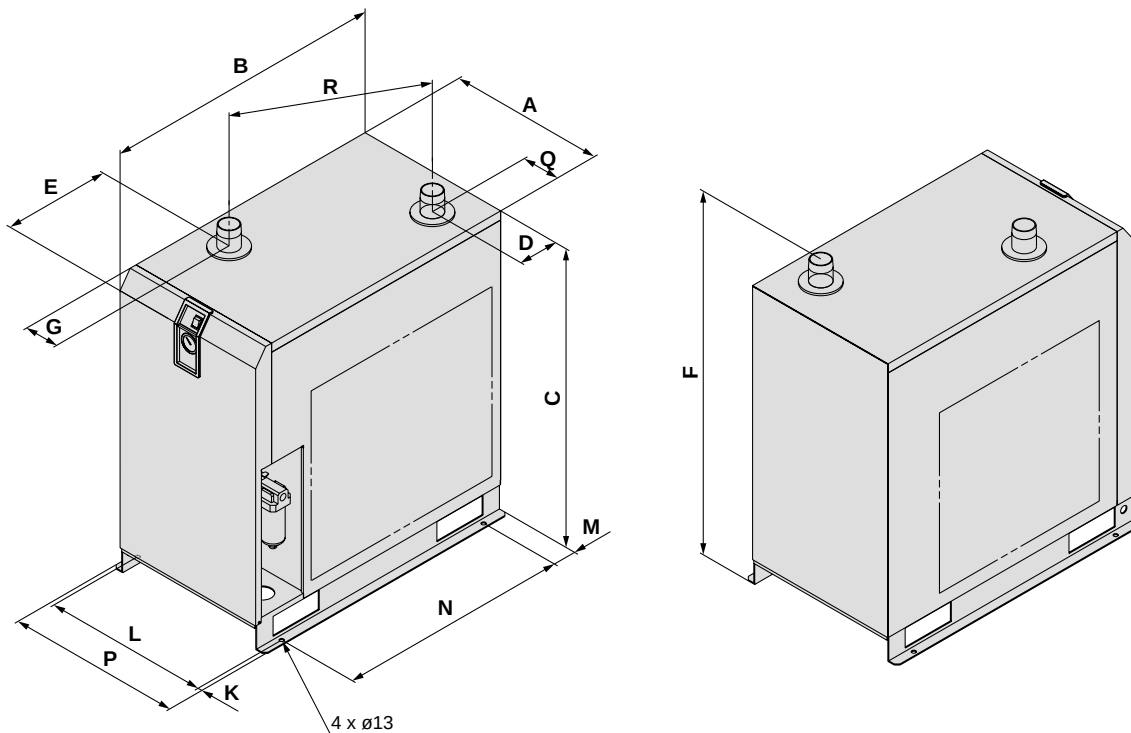


Dimensions

(mm)

Model	Port size	A	B	C	D	E	F	G	K	L	M	N	P	Q
IDFA22E	R 1	290	775	623	134	405	698	93	13	25	85	600	340	—
IDFA37E	R 1½		855	623	134	405	698	93	13	25	85	680	340	—

IDFA55E, IDFA75E



Dimensions

(mm)

Model	Port size	A	B	C	D	E	F	G	K	L	M	N	P	Q	R
IDFA55E	R 2	470	855	800	(128)	(273)	(868)	(110)	13	500	75	700	526	(110)	519
IDFA75E				900			(968)								

Series IDFA□E

Options 1

For “How to Order” optional models, refer to page 3 and 6.

A Option symbol

Cool compressed air output IDFA3E to 11E

There is no heating of cooled, dehumidified air as it leaves the air dryer. The air flow capacity with this option is smaller than that of the standard dryer. (The external dimensions are identical with the standard product.)
 Note) Perform thermal insulation treatment for piping and equipment installed after the dryer to prevent the formation of condensation.

Air Flow Capacity

Model	IDFA3E	IDFA4E	IDFA6E	IDFA8E	IDFA11E
Air flow capacity m ³ /h (ANR)	18	23	29	32	39

Conditions: Inlet air pressure: 0.7 MPa, Inlet air temperature: 35°C,
 Outlet air temperature: 10°C Ambient temperature: 25°C

C Option symbol

Anti-corrosive treatment IDFA all models

This minimizes the corrosion of the copper and copper alloy parts when the air dryer is used in an atmosphere containing hydrogen sulfide or sulfuric acid gas. (Corrosion cannot be completely prevented.)
 Special epoxy coating: Copper tube and copper alloy parts.
 The coating is not applied on the heat exchanger or around electrical parts, where operation may be affected by the coating.
 * Corrosion is not covered under warranty.

K Option symbol

For medium air pressure (Auto drain bowl type: Metal bowl with level gauge) IDFA6E to 37E

The auto drain is changed from the standard one to one with a medium pressure specification.
 A metal bowl with a level gauge which can confirm the water level is used for the auto drain.

Specifications

1. Maximum operating pressure: 1.6 MPa
2. Dimensions ... same as standard products

Replacement Parts

Model	Auto drain assembly part no.	Note
IDFA6E to 15E	IDF-S0086	The AD48-8-X2110 auto drain, insulator, and one-touch fitting are included.
IDFA22E, 37E	AD48-8-X2110	Single auto drain unit

L Option symbol

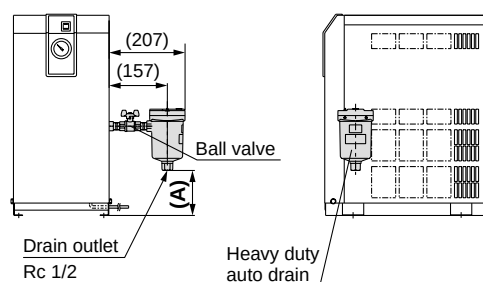
With heavy duty auto drain (Applicable to medium air pressure) IDFA4E to 75E

The float type auto drain used in the standard air dryer is replaced with a heavy duty auto drain (ADH4000-04) which enables the drainage to discharge more efficiently.

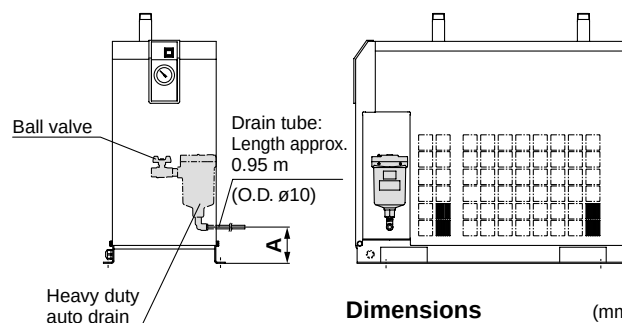
Dimensions (mm)

Model	A
IDFA4E	55
IDFA6E	67
IDFA8E, 11E	139
IDFA15E	47

IDFA4E to 15E



IDFA22E to 75E



Dimensions (mm)

Model	A
IDFA22E, 37E	Approx. 100
IDFA55E, 75E	Approx. 50

Note 1) The heavy duty auto drain and the ball valve are both enclosed in the same shipping package as the main body of the air dryer. Customers are required to mount the parts to the air dryer. (Except IDFA22E to 75E)

Note 2) Customers will need to supply the fitting and tubing for the drain piping. (Except IDFA22E to 75E)

Replacement Parts: Heavy Duty Auto Drain

Model	Replacement parts no. (Description)	Configuration
IDFA4E to 15E	ADH4000-04 (Heavy duty auto drain)	Heavy duty auto drain
IDFA22E to 75E	ADH-E400 (Replacement kit for exhaust mechanism)	Replacement kit for exhaust mechanism
		Housing (You don't need to purchase a new housing.)

Series IDFA□E

Options 2

For “How to Order” optional models, refer to page 3 and 6.

R

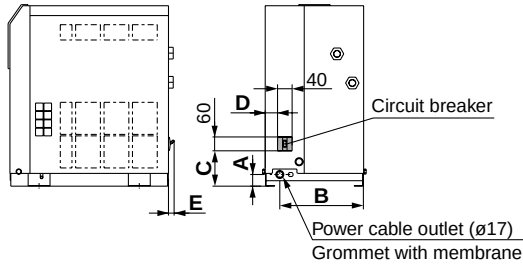
Option symbol

With circuit breaker

IDFA4E to 75E

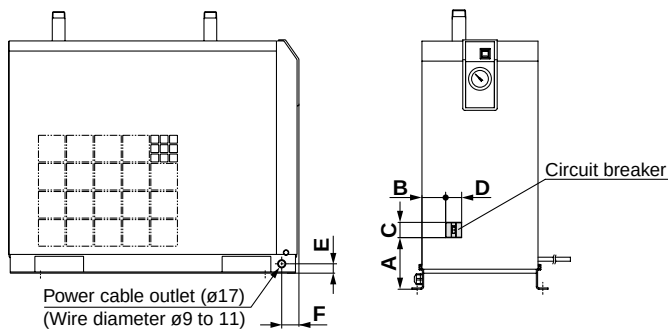
A circuit breaker with cover is attached to the side of the air dryer. This saves additional electrical wiring at the time of installation.

IDFA4E to 15E



Dimensions (mm)					
Model	A	B	C	D	E
IDFA4E, 6E, 8E, 11E	32	230	97	34	15
IDFA15E	43	258	102	82	—

IDFA22E to 75E



Dimensions (mm)						
Model	A	B	C	D	E	E
IDFA22E	125	59		40	25	46
IDFA37E		39				
IDFA55E	148	81	60	60	50	36
IDFA75E	133	73				

Breaker Capacity and Sensitivity Current

Voltage	Model	Breaker capacity	Sensitivity current
230 V type	IDFA4E-23, IDFA6E-23 IDFA8E-23, IDFA11E-23	5 A	30 mA
	IDFA15E-23, IDFA22E-23 IDFA37E-23, IDFA55E-23	10 A	
	IDFA75E-23	20 A	

T

Option symbol

With terminal block for power supply, run & alarm signal and remote operation

IDFA4E to 75E

In addition to the terminals for the power supply, terminals for the operating signal and the error signal are also available. (No-voltage contact)

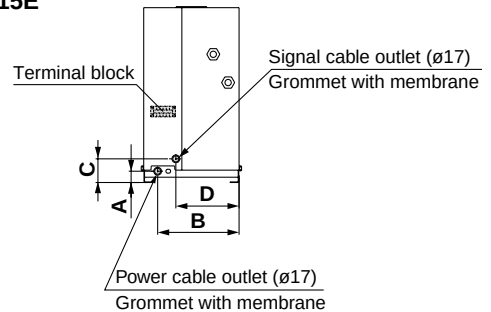
Also, in the case of remote control, operate it from the power supply side while the air dryer switch remains ON.

Contact capacity: 230 VAC, 4 A 24 VDC, 5 A for operating and error signals.

Minimum current value: 20 V, 5 mA (AC/DC) for operating and error signals.

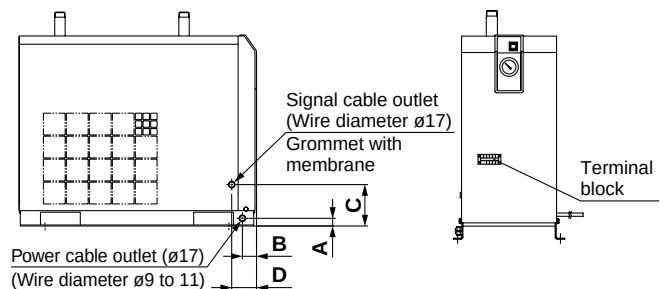
Note) Please be sure to confirm the electric circuits with the drawings or instruction manual before using the output signal.

IDFA4E to 15E



Dimensions (mm)				
Model	A	B	C	D
IDFA4E, 6E, 8E, 11E	32	230	67	179
IDFA15E	43	258	77	158

IDFA22E to 75E



Dimensions (mm)				
Model	A	B	C	D
IDFA22E, 37E	25	46	135	81
IDFA55E, 75E	50	36	207	81

V

Option symbol

With timer-type solenoid valve (Applicable to medium air pressure)

IDFA4E to 75E

Drainage is discharged by controlling a solenoid valve with a timer. A strainer for solenoid valve protection and stop valve are also included.

Maximum operating pressure: 1.6 MPa

* The timer-type solenoid valve actuates once (for 0.5 s) every 30 s.

Replacement Parts

Model	Part no.	Note
IDFA4E to 75E	IDF-S0198	230 VAC

Optional Accessories

		Features	Specifications	Applicable dryer
Dust-protecting filter set		Prevents a decline in the performance of the air dryer, even in a dusty atmosphere.	Max. ambient temperature 40°C	IDFA3E to 75E
Foundation bolt set		Bolts for fixing the air dryer to the foundations. Easy to secure by striking its axle.	Stainless steel	IDFA4E to 75E

How to Order

Dust-protecting filter set

IDF — FL 209

Applicable dryer

Symbol	Applicable dryer
209	IDFA3E
202	IDFA4E
203	IDFA6E
204	IDFA8E
205	IDFA11E
206	IDFA15E
207	IDFA22E
208	IDFA37E
213	IDFA55E
214	IDFA75E

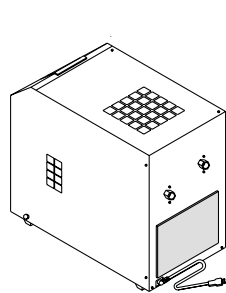
Foundation bolt set

IDF — AB 500

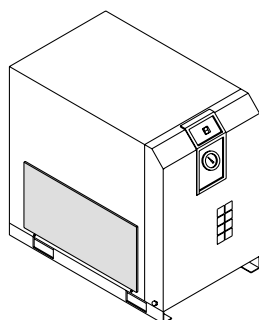
Applicable dryer

Symbol	Applicable dryer
500	IDFA4E to 75E

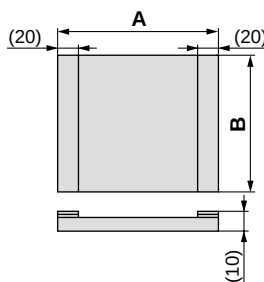
Dust-protecting Filter Set / Dimensions



(IDF-FL209)



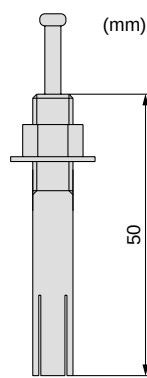
(IDF-FL202 to 208, 213, 214)



Dimensions

Part no.	Applicable dryer	A	B	Weight (g)
IDF-FL209	IDFA3E	220	240	35
IDF-FL202	IDFA4E	310	195	45
IDF-FL203	IDFA6E	375	195	55
IDF-FL204	IDFA8E	340	265	70
IDF-FL205	IDFA11E	375	265	75
IDF-FL206	IDFA15E	310	270	70
IDF-FL207	IDFA22E	420	315	100
IDF-FL208	IDFA37E	550	365	140
IDF-FL213	IDFA55E	720	400	175
IDF-FL214	IDFA75E	610	560	190

Foundation Bolt Set / Dimensions



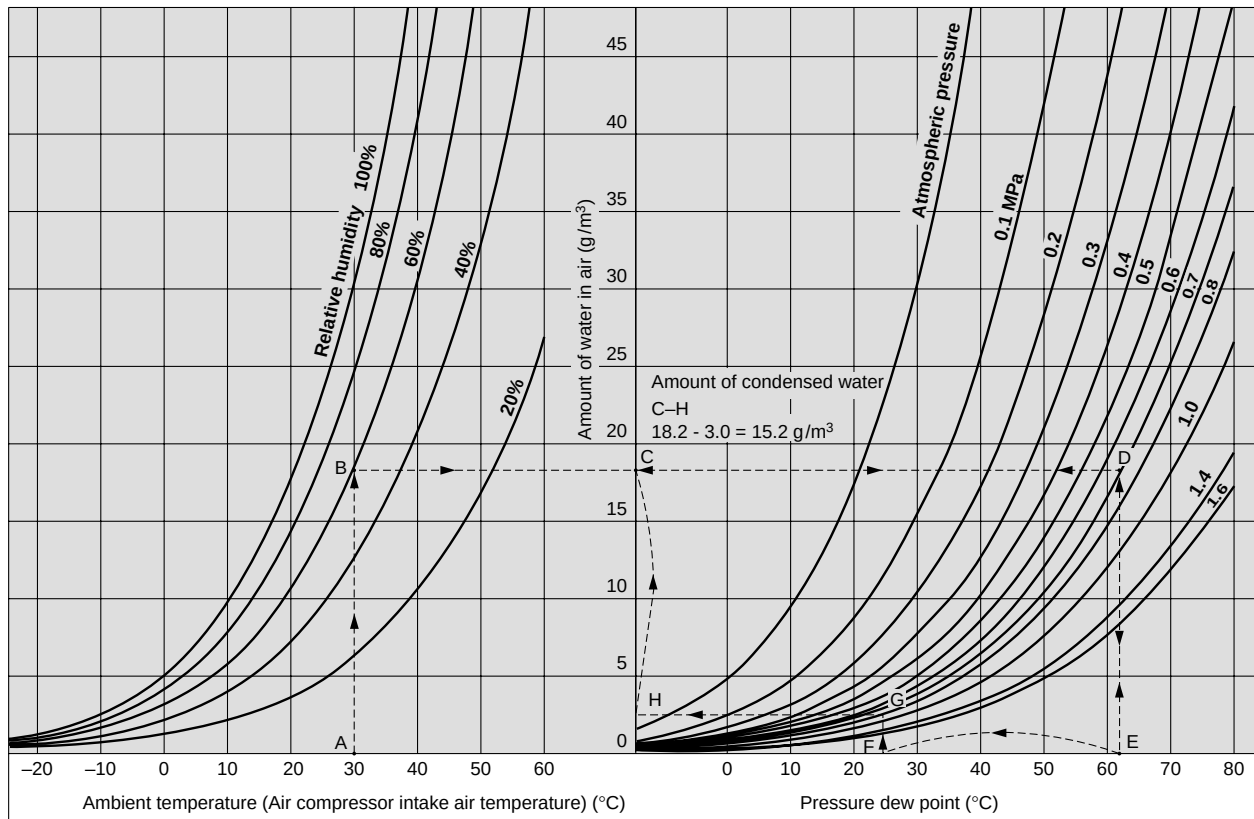
Dimensions

Part no.	Applicable dryer	Nominal thread size	Material	Pcs. of 1 set
IDF-AB500	IDFA4E to 75E	M10	Stainless steel	4

Mounting hole diameter: $\phi 10.5$

Data

Condensed Water Calculation

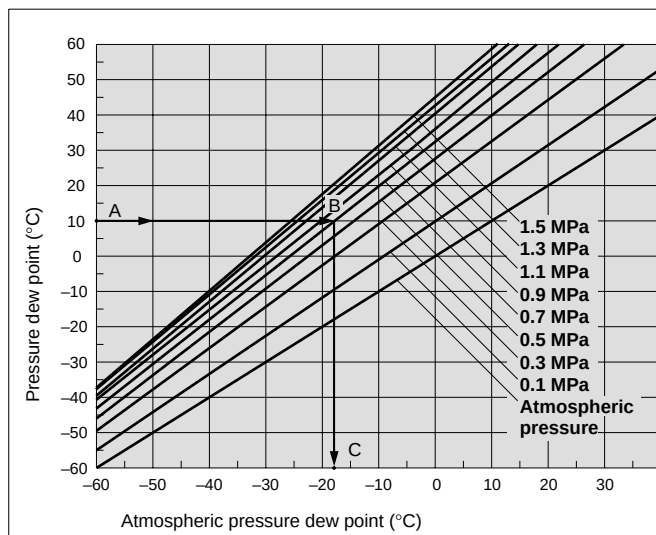


How to calculate the amount of condensed water

Example) To obtain the amount of condensed water when the inlet air of a compressor is pressurized to 0.7 MPa then cooled down to 25°C. Given an ambient temperature of 30°C and a relative humidity of 60%.

- Trace the arrow mark from point A of ambient temperature 30°C to obtain the intersection B on the curved line for the relative humidity of 60%.
- Trace the arrow mark from the intersection B to obtain the intersection D on the curved line for the 0.7 MPa pressure characteristics.
- Trace the intersection D to obtain the intersection E.
- The intersection E is the pressure dew point at 0.7 MPa with an ambient temperature of 30°C and a relative humidity of 60%. The value for E is at 62°C.
- Trace the intersection E upward to D and leftward to obtain the intersection C on the vertical line.
- The intersection C is the amount of water which is included in the compressed air 1 m³ at 0.7 MPa, a pressure dew point of 62°C. The amount of water is 18.2 g/m³.
- Trace the arrow mark from F (cooling temperature 25°C (pressure dew point 25°C)) to obtain the intersection G on the pressure characteristic line for 0.7 MPa.
- From the intersection G, trace the arrow mark to obtain the intersection H on the vertical line.
- The intersection H is the amount of water which is included in the compressed air 1 m³ at 0.7 MPa, pressure dew point of 25°C. The amount of water is 3.0 g/m³.
- Therefore, the amount of condensed water is as following. (per 1 m³)
The amount of water at the intersection C
– the amount of water at the intersection H
= the amount of condensed water
 $18.2 - 3.0 = 15.2 \text{ g/m}^3$

Dew Point Conversion Chart



How to read the dew point conversion chart

Example) To obtain the atmospheric dew point at a pressure dew point of 10°C, and a pressure of 0.7 MPa.

- Trace the arrow mark from point A at a pressure dew point of 10°C to obtain the intersection B on the pressure characteristic line for 0.7 MPa.
- Trace the arrow mark from point B to obtain the intersection C on the atmospheric pressure dew point.
- The intersection C is the conversion value -17°C under atmospheric pressure dew point.



Series IDFA□E

Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labels of "Caution", "Warning" or "Danger". To ensure safety, be sure to observe ISO 4414 ^{Note 1)}, JIS B 8370 ^{Note 2)} and other safety practices.

■ Explanation of the Labels

Labels	Explanation of the labels
 Danger	In extreme conditions, there is a possible result of serious injury or loss of life.
 Warning	Operator error could result in serious injury or loss of life.
 Caution	Operator error could result in injury ^{Note 3)} or equipment damage. ^{Note 4)}

Note 1) ISO 4414: Pneumatic fluid power – General rules relating to systems

Note 2) JIS B 8370: General Rules for Pneumatic Equipment

Note 3) Injury indicates light wounds, burns and electrical shocks that do not require hospitalization or hospital visits for long-term medical treatment.

Note 4) Equipment damage refers to extensive damage to the equipment and surrounding devices.

■ Selection/Handling/Applications

1. The compatibility of the pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or post analysis and/or tests to meet the specific requirements. The expected performance and safety assurance are the responsibility of the person who has determined the compatibility of the system. This person should continuously review the suitability of all items specified, referring to the latest catalog information with a view to giving due consideration to any possibility of equipment failure when configuring a system.

2. Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if handled incorrectly. Assembly, handling or repair of the systems using pneumatic equipment should be performed by trained and experienced operators. (Understanding JIS B 8370 General Rules for Pneumatic Equipment, and other safety rules are included.)

3. Do not service machinery/equipment or attempt to remove components until safety is confirmed.

1. Inspection and maintenance of machinery/equipment should only be performed once measures to prevent falling or runaway of the driven objects have been confirmed.
2. When equipment is removed, confirm the safety process as mentioned above. Turn off the supply pressure for this equipment and exhaust all residual compressed air in the system, and release all the energy (liquid pressure, spring, condenser, gravity).
3. Before machinery/equipment is restarted, take measures to prevent quick extension of a cylinder piston rod, etc.

4. If the equipment will be used in the following conditions or environment, please contact SMC first and be sure to take all necessary safety precautions.

1. Conditions and environments beyond the given specifications, or if product is used outdoors.
2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, clutch and brake circuits in press applications, or safety equipment.
3. An application which has the possibility of having negative effects on people, property, requiring special safety analysis.
4. If the products are used in an interlock circuit, prepare a double interlock style circuit with a mechanical protection function for the prevention of a breakdown. And, examine the devices periodically if they function normally or not.

■ Exemption from Liability

1. SMC, its officers and employees shall be exempted from liability for any loss or damage arising out of earthquakes or fire, action by a third person, accidents, customer error with or without intention, product misuse, and any other damages caused by abnormal operating conditions.
2. SMC, its officers and employees shall be exempted from liability for any direct or indirect loss or damage, including consequential loss or damage, loss of profits, or loss of chance, claims, demands, proceedings, costs, expenses, awards, judgments and any other liability whatsoever including legal costs and expenses, which may be suffered or incurred, whether in tort (including negligence), contract, breach of statutory duty, equity or otherwise.
3. SMC is exempted from liability for any damages caused by operations not contained in the catalogs and/or instruction manuals, and operations outside of the specification range.
4. SMC is exempted from liability for any loss or damage whatsoever caused by malfunctions of its products when combined with other devices or software.



Series IDFA□E

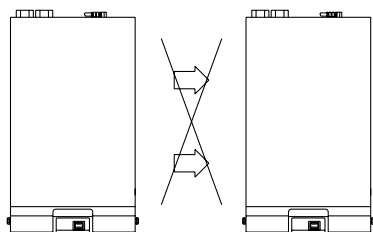
Specific Product Precautions 1

Be sure to read this before handling. For Air Preparation Equipment Precautions, refer to “Precautions for Handling Pneumatic Devices” (M-03-E3A).

Installation

⚠ Caution

- Avoid locations where the air dryer will be in direct contact with wind and rain. (Places where relative humidity is greater than 85%)
- Avoid exposure to direct sunlight.
- Avoid locations that contain much dust, corrosive gases, or flammable gases. Failure due to corrosion is not covered under warranty. However, when the risk of corrosion is high, select “Option C” (copper tubing with anti-corrosive treatment).
- Avoid locations of poor ventilation and high temperature.
- Too close to a wall etc. Leave sufficient room between the dryer and the wall according to the “Maintenance space” in the operation manual.
- Avoid locations where a dryer could draw in high temperature air that is discharged from an air compressor or other dryer.



The air exhaust should not flow into the neighboring equipment. (Top side)

- Avoid locations subjected to vibration.
- Avoid possible locations where the drain can freeze.
- Use the air dryer with an ambient temperature lower than 40°C.
- Avoid installation on machines for transporting, such as trucks, ships, etc.

Drain Tube

⚠ Caution

- A polyurethane tube is attached as a drain tube for the IDFA3E to 37E. Use this tube to discharge drainage.
- Do not use the drain tube in an upward direction. Do not bend or crush the drain tube. (Operation of the auto drain will stop water vapor from discharging through the air outlet.)

Power Supply

⚠ Caution

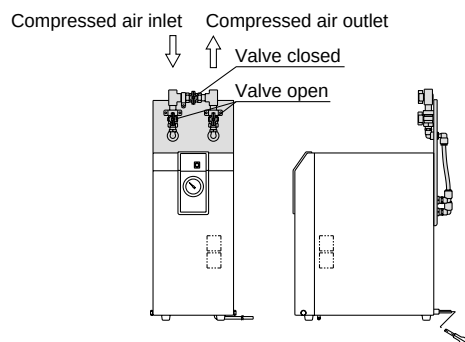
- Connect the power supply to the terminal block.
- Install a suitable circuit breaker applicable for the specific model.
- The voltage fluctuation should be maintained within $\pm 10\%$ of the rated voltage.

Air Piping

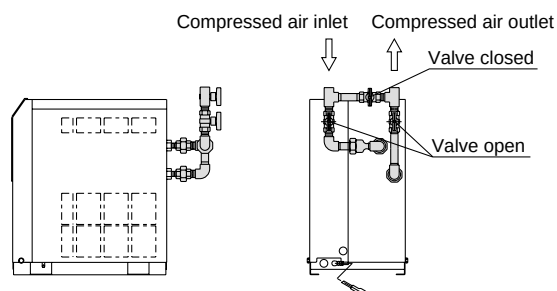
⚠ Caution

- Be careful to avoid an error in connecting the air piping at the compressed air inlet (IN) and outlet (OUT).
- Install by-pass piping since it is needed for maintenance.

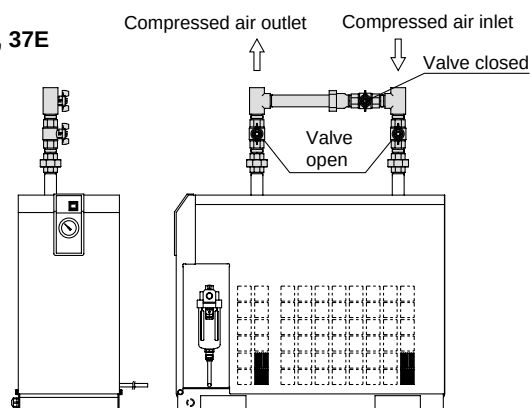
IDFA3E



IDFA4E to 15E



IDFA22E, 37E





Series IDFA□E

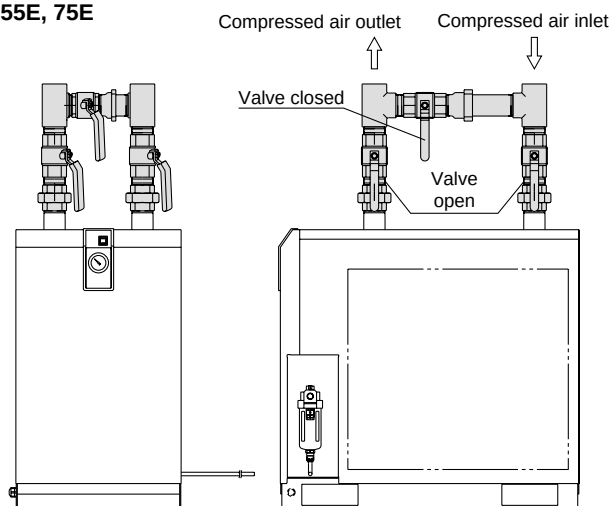
Specific Product Precautions 2

Be sure to read this before handling. For Air Preparation Equipment Precautions, refer to “Precautions for Handling Pneumatic Devices” (M-03-E3A).

Air Piping

⚠ Caution

IDFA55E, 75E



- When tightening piping at the air inlet/outlet tube, the hexagonal parts of the port on the air dryer side or piping should be held firmly with a spanner or adjustable angle wrench.
- Variations in operating conditions may cause condensation to form at the surface of the outlet piping. Apply thermal insulation around the piping to prevent condensation from forming.
- Vibration resulting from the compressor should not be transmitted through air piping to the air dryer.
- Do not allow the weight of the piping to lie directly on the air dryer.

Protection Circuit

⚠ Caution

When the air dryer is operated under the following stated conditions, a protection circuit is activated, the light turns off and operation stops.

- When the compressed air temperature is too high.
- When the compressed air flow rate is too high.
- When the ambient temperature is too high. (40°C or higher)
- When the fluctuation of the power supply is beyond the rated voltage $\pm 10\%$.
- When the dryer is drawing in high temperature air that is discharged from an air compressor or other dryer.
- The ventilation port is obstructed by a wall or clogged with dust.

Compressor Air Delivery

⚠ Caution

Use an air compressor with an air delivery of 100 d/min or larger with the IDFA3E to 75E series.

Since the auto drain of the IDFA3E to 75E is designed in such a way that the valve remains open unless the air pressure rises to 0.15 MPa or higher, air will blow out from the drain discharge port at the time of air compressor start-up until the pressure increases. Therefore, if an air compressor has a small air delivery, the pressure may not be sufficient.

Auto Drain

⚠ Caution

The auto drain may not function properly, depending on the quality of the compressed air. Check the operation once a day.

Cleaning of Ventilation Area

⚠ Caution

Remove dust from the ventilation area once a month using a vacuum cleaner or an air blow nozzle.

Time Delay for Restarting

⚠ Caution

Allow at least three minutes before restarting the dryer. If the air dryer is restarted within three minutes after being stopped, the protection circuit will be activated, operating light turns off and the dryer will not be activated.

Air Dryers for Japan Use

Complies with CFC restrictions **Refrigerated Air Dryer** *Series IDF*

Standard temperature air inlet type

Rated inlet air temperature:
35, 40°C



Model	Rated inlet condition	Air flow capacity (m³/min [ANR])		Applicable air compressor (kW)	Refrigerant	Port size
		50 Hz	60 Hz			
IDF1E	35°C 0.7 MPa	0.1	0.12	0.75	R134a (HFC)	Rc 3/8
IDF2E		0.2	0.235	1.5		
IDF3E		0.32	0.37	2.2		
IDF4E		0.52	0.57	3.7		Rc 1/2
IDF6E		0.75	0.82	5.5		Rc 3/4
IDF8E		1.22	1.32	7.5		
IDF11E		1.65	1.82	11		
IDF15E		2.8	3.1	15		Rc 1
IDF22E		3.9	4.3	22		R 1
IDF37E	40°C 0.7 MPa	5.7	6.1	37	R407C (HFC)	R 1½
IDF55E		8.4	9.8	55		R 2
IDF75E		11.0	12.4	75		
IDF120D		20.0	23.0	120		2 ½B flange
IDF150D		25.0	30.0	150		3B flange
IDF190D		32.0	38.0	190		
IDF240D		43.0	50.0	240		4B flange
IDF370B	35°C 0.7 MPa	54.0	65.0	370	R22	6B flange

Complies with CFC restrictions **Refrigerated Air Dryer** *Series IDU*

High temperature air inlet type

Rated inlet air temperature:
50, 55°C



Model	Rated inlet condition	Air flow capacity (m³/min [ANR])		Applicable air compressor (kW)	Refrigerant	Port size
		50 Hz	60 Hz			
IDU3E	55°C 0.7 MPa	0.32	0.37	2.2	R134a (HFC)	Rc 3/8
IDU4E		0.52	0.57	3.7		Rc 1/2
IDU6E		0.75	0.82	5.5		Rc 3/4
IDU8E		1.1	1.2	7.5		
IDU11E		1.5	1.7	11		
IDU15E		2.6	2.8	15		Rc 1
IDU22E		3.9	4.3	22	R407C (HFC)	R 1
IDU37E		5.7	6.1	37		R 1½
IDU55C	50°C 0.7 MPa	7.65	9.0	55	R22	R 2
IDU75C		10.5	12.4	75		

* See separate catalog.

Air Dryers Compliant to Overseas Standards

Refrigerated Air Dryer Series **IDFB□E**

For use in North, Central & South America



UL certified

Power supply voltage:
Single-phase 115 VAC (60 Hz)
230 VAC (60 Hz)

Refrigerant: **R134a (HFC)**

Coefficient of destruction for ozone is zero.

Improved corrosion resistance with the use of stainless steel, plate type heat exchanger
(IDFB4E to 37E)



Series	Air flow capacity SCFM (m³/h [ANR])			Refrigerant	Rated inlet condition	Port size
	Outlet air pressure dew point					
	37°F (2.8°C)	45°F (7.2°C)	50°F (10°C)			
IDFB3E	10 (17)	11 (19)	12 (20)	R134a (HFC)	100°F (37.8°C) 100 psig (0.7 MPa)	NPT 3/8
IDFB4E	15 (25)	16 (27)	17 (28)			NPT 1/2
IDFB6E	25 (43)	26 (45)	28 (47)			NPT 3/4
IDFB8E	41 (70)	43 (74)	45 (77)			
IDFB11E	59 (100)	62 (106)	65 (110)			
IDFB15E	71 (120)	80 (136)	86 (147)			NPT 1
IDFB22E	107 (182)	120 (205)	130 (221)			
IDFB37E	161 (273)	173 (294)	181 (308)			

* See separate catalog for dryer models conforming with North American standards (UL).

Related Products

Membrane Air Dryer *Series IDG*

Dew point indicator for checking air drying condition at a glance

(Except IDG1)
(The IDG3, IDG5, IDG3H, IDG5H are semi-standard.)

- Compact
- Lightweight
- Space-saving

Fitting for discharging purge air available

Purge air can be discharged with a tube if it should not be discharged around the membrane air dryer (semi-standard).

Discharged air noise reduced with built-in silencer

[Except IDG1, IDG3, IDG3H, IDG5, IDG5H, IDG30, IDG30H, IDG30L, IDG50, IDG50H, IDG50L]



**CFC free:
Environmentally friendly**

No need for a power supply

A power supply is not necessary at all. Saves time and effort for wiring, and there is no need to consider electrical standards.

No vibration nor heat discharge

No mechanically moving parts such as refrigerator

Suitable for a low dew point

Outlet air atmospheric pressure dew point: -40°C
[IDG30L, IDG50L, IDG60L]
[IDG75L, IDG100L]

Outlet air atmospheric pressure dew point: -60°C
[IDG60S, IDG75S, IDG100S]

**Outlet air flow rate
10 to 1000 ℓ/min (ANR)**

Heatless Air Dryer *Series ID*

Heatless type ID series is ideal for applications that require dry air with a low dew point.

Supplies dry air with a low dew condensation point of -30°C or less.

Small and light without heater and electric control panel



Possible to check outlet dew point with indicator

(Self-regenerative style allows easy maintenance.)

**Outlet air flow rate
80 to 780 ℓ/min (ANR)**



Record of changes

- | | |
|------------------|--|
| B edition | <ul style="list-style-type: none">* Addition of Refrigerated Air Dryer, IDFA55E, 75E.* Options on page 3 and 6: Addition of "with timer-type solenoid valve".* Number of pages 16 to 20. |
|------------------|--|

LT

 Safety Instructions	Be sure to read "Precautions for Handling Pneumatic Devices" (M-03-E3A) before using.
--	---

SMC Corporation

Akihabara UDX 15F,
4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101-0021, JAPAN
Phone: 03-5207-8249 FAX: 03-5298-5362
URL <http://www.smcworld.com>
© 2007 SMC Corporation All Rights Reserved

Specifications are subject to change without prior notice
and any obligation on the part of the manufacturer.

D-DN

1st printing KX printing LT 13500DN Printed in Japan.

This catalog is printed on recycled paper with concern for the global environment.